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Docket Number 50-346

NP-33-05-006-00
10CFR50.73

License Number NPF-3

January 17, 2006

United States Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555-0001

Ladies and Gentlemen:

LER 2005-006-00
Davis-Besse Nuclear Power Station, Unit No. 1
Date of Occurrence – November 14, 2005

Enclosed is Licensee Event Report (LER) 2005-006-00, which is being submitted to provide written notification of a condition prohibited by the Technical Specifications in which the Technical Specification 3.8.1.1 Action "b" required breaker alignment and off-site power availability check was not completed within one hour and at least once per eight hours thereafter when an Emergency Diesel Generator (EDG) became inoperable. This event occurred when a Service Water (SW) valve supplying cooling water to the standby Component Cooling Water (CCW) train, and in turn its associated EDG, was inadvertently left closed when swapping CCW trains. The SW supply valve should have been repositioned to be open.

This event is being reported in accordance with 10 CFR 50.73(a)(2)(i)(B) as a condition prohibited by the Technical Specifications due to the associated EDG being inoperable as a result of the lack of CCW, and subsequent failure to perform the Technical Specification-required action of breaker alignment check and verifying off-site power availability. Commitments associated with this LER are listed in the Attachment.

Very truly yours,

Barry Allen
for Mark B. Bezilla

JCS
Attachment
Enclosure

cc: Regional Administrator, USNRC Region III
DB-1 Project Manager, USNRC
DB-1 NRC Senior Resident Inspector
Utility Radiological Safety Board

IE22

COMMITMENT LIST

The following list identifies those actions committed to by the Davis-Besse Nuclear Power Station in this document. Any other actions discussed in the submittal represent intended or planned actions by Davis-Besse. They are described only as information and are not regulatory commitments. Please notify the Manager – Regulatory Compliance (419-321-8585) at Davis-Besse of any questions regarding this document or associated regulatory commitments.

COMMITMENTS	DUE DATE
1. Standing Order 05-018, "When Independent Verification is Required," was issued to reiterate the standards for Independent Verification and requires additional sign offs to be inserted, as necessary, to document completion of the independent verification.	1. Completed 11/16/05
2. This event was discussed with Operations on-shift personnel, including the importance of identifying critical steps, use of the SAFER briefing card, and the necessity of always using the event free tools.	2. Completed 12/21/05
3. The individual human performance issues associated with this event were addressed in accordance with the company performance management process.	3. Completed 12/13/05

NRC FORM 366 (6-2004) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104 EXPIRES 6/30/2007

Estimated burden per response to comply with this mandatory collection request: 50 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
Davis-Besse Unit Number 1	05000346	1 OF 5

4. TITLE
Technical Specification Action Missed Due To Improper Valve Positioning By Operator

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
11	14	2005	2005	- 006 -	00	01	17	2006		05000
									FACILITY NAME	DOCKET NUMBER
										05000

9. OPERATING MODE
1

10. POWER LEVEL
100

11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: *(Check all that apply)*

☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(i)(C)	☐ 50.73(a)(2)(vii)
☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(a)	☐ 50.73(a)(2)(viii)(A)
☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☐ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(4)
☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(5)
☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(C)	☐ OTHER Specify in Abstract below
☐ 20.2203(a)(2)(vi)	☒ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(v)(D)	

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME	TELEPHONE NUMBER *(Include Area Code)*
Joseph C. Sturdavant, Senior Nuclear Specialist, Regulatory Compliance	(419) 321-8199

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX

14. SUPPLEMENTAL REPORT EXPECTED

☐ YES *(If yes, complete EXPECTED SUBMISSION DATE).* ☒ NO

15. EXPECTED SUBMISSION DATE

MONTH	DAY	YEAR

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

On November 15, 2005, with the plant at 100% power, SW-38, Component Cooling Water (CCW) Heat Exchanger 2 Manual Isolation Valve, was found closed. Upon discovery of SW-38 being closed, the valve was opened. CCW train 2 was the standby train and, therefore, SW-38 should have been open to provide cooling to essential equipment, including the Emergency Diesel Generator (EDG) 2 in the event the EDG was required to operate. The as-found position of SW-38, closed, rendered CCW train 2 and EDG 2 inoperable. With SW-38 closed, CCW train 2 and EDG 2 were inoperable for approximately 18 hours beginning on November 14, 2005. Because Technical Specification 3.8.1.1 Action "b" (breaker alignment and indicated off-site power availability) was not completed within the action statement specified timeframe of one hour with EDG 2 inoperable, this condition is reportable as an Operation or Condition Prohibited by Technical Specifications per 10CFR50.73(a)(2)(i)(B).

The root cause(s) were determined to be: 1) worker practice error; and 2) less than adequate pre-job briefing. Corrective actions include: addressing the individual human performance issues; and issuing a Standing Order reiterating the standards for Independent Verification and requiring additional sign offs to document completion of the independent verification (to be identified during the pre-job brief).

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Davis-Besse Unit Number 1	05000346	2005	-- 006 --	00	2 OF 5

17. NARRATIVE *(If more space is required, use additional copies of NRC Form 366A)*

DESCRIPTION OF OCCURRENCE:

System Description:

The Service Water (SW) System [BI] provides water from Lake Erie via the Forebay to Safe Shutdown equipment after either a Safe Shutdown Earthquake or a large break Loss of Coolant Accident (LOCA). The SW System supplies various cooling loads including cooling water to the Component Cooling Water (CCW) System [CC], specifically the CCW heat exchangers [CC-HX]. During normal operation two SW pumps [BI-P] are operating, one SW pump supplies cooling water to the header supplying the essential loads (primary header) and one SW pump supplies cooling water to the header supplying nonessential loads (secondary header). The SW train supplying the secondary header supplies water to various loads and is also lined up to supply water to the standby CCW heat exchanger, as required. Service Water is supplied to the standby CCW heat exchanger up to the outlet temperature control valve [CC-TCV]. The outlet temperature control valve is normally closed because no heat load is on the standby CCW train. If the standby CCW train is required to provide cooling, then the temperature outlet control valve will open in response to the heat load.

During Design Basis Accident (i.e., LOCA) conditions, the CCW System supplies cooling water to both trains of essential components such as the High Pressure Injection [BQ] Pumps [BQ-P], the Decay Heat [BP] Pumps [BP-P] and Coolers [BP-HX], and the Emergency Diesel Generators (EDG) [EK] Jacket Cooling Water Heat Exchanger [EK-HX]. During emergency operation, such as receipt of an EDG automatic start signal, the associated standby CCW Pump [CC-P] will start automatically to provide cooling to the associated EDG.

Event Description:

On November 15, 2005 at 1027 hours, with the Davis-Besse Nuclear Power Station (DBNPS) in Mode 1 and the Reactor at approximately 100 percent power, during a zone tour an Equipment Operator found SW-38, CCW Heat Exchanger 2 Manual Isolation Valve [BI-ISV], in the closed position. At the time, CCW train 2 was the standby train and, therefore, SW-38 should have been open to provide cooling to CCW train 2, which would then provide cooling for the EDG 2 Jacket Cooling Water Heat Exchanger in the event the EDG was required to operate. The as-found position of SW-38, closed, rendered CCW train 2 and consequently EDG 2 inoperable.

Upon discovery of SW-38 being in the closed position, at 1038 hours, the valve was opened and procedure DB-OP-06262 Revision 12, "Component Cooling Water System Operating Procedure" Attachment 28 was performed to verify correct lineup of CCW pump 2. No further deficiencies were found.

On the previous afternoon shift (November 14, 2005) at approximately 1640 hours, CCW pump 2 had been declared available in spare status (with SW-38 reportedly open). However, valve SW-38 remained closed until it was discovered closed by an Equipment Operator during his zone tour on November 15, 2005 at approximately 1027 hours. During the time that SW-38 was in the closed position, CCW train 2 heat exchanger would not have received cooling water from Service Water train 2, and CCW train 2 would not have been able to fulfill its intended safety function. With SW-38 closed, CCW train 2 and its associated EDG 2 were determined to be inoperable from 1640 hours on 11/14/05 to 1038 hours on 11/15/05 (approximately 18 hours).

LICENSEE EVENT REPORT (LER)

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Davis-Besse Unit Number 1	05000346	2005	-- 006 --	00	3 OF 5

17. NARRATIVE *(If more space is required, use additional copies of NRC Form 366A)*

DESCRIPTION OF OCCURRENCE (continued):

EDG train #2 - Technical Specification 3.8.1.1 Action b.

Technical Specification (TS) 3.8.1.1 Action b. states with one diesel generator of the required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing TS Surveillance Requirement (SR) 4.8.1.1.1.a within one hour and at least once per 8 hours thereafter and by performing Surveillance Requirement 4.8.1.1.2.a.4 within 24 hours. Restore at least two diesel generators to OPERABLE status within 7 days . . .

From November 14, 2005 at approximately 1640 hours when SW-38 should have been opened until November 15, 2005 at 1038 hours when it was opened, the performance of the first portion of the TS 3.8.1.1 Action b (SR 4.8.1.1.1.a, breaker alignment and power availability check by performance of TS SR 4.8.1.1.1.a) was not completed within 1 hour and at least once per 8 hours thereafter. Although EDG 2 was restored to operable status within approximately 18 hours, TS 3.8.1.1 Action b verification of the availability of offsite power was not performed within the required 1 hour. Therefore, because TS 3.8.1.1 Action b (breaker alignment and associated off-site power availability) was not completed within the action statement specified timeframe, the plant was operated in a condition prohibited by Technical Specifications, which is reportable per 10 CFR 50.73(a)(2)(i)(B).

APPARENT CAUSE OF OCCURRENCE:

On November 14, 2005 at approximately 1623 hours, the Equipment Operator was briefed by the Field Supervisor for CCW pump 2 pre-start checklist (procedure DB-OP-06262 Attachment 28) and breaker racking. When the Equipment Operator was briefed for performing the pre-start checklist and breaker racking operations to place CCW train 2 in standby status, the emphasis was on the breaker racking portion. The Field Supervisor discussed that one of the steps on the checklist had an "error trap" and that SW-37 (CCW Heat Exchanger 3 Isolation Valve) needed to be closed. This brief did not discuss that SW-38 needed to be opened nor that opening SW-38 should be considered a critical step. The operating procedure, DB-OP-06262, Attachment 28 did not have double initial blocks for performing and documenting SW-38 valve operation, which would have identified it as requiring an independent verification.

Following the pre-job brief, the Equipment Operator went on to perform the checklist. When the Equipment Operator got to the step for verifying that SW-38 was open, he began performing the verification as required by the procedure, i.e., he attempted to turn the hand wheel in the close direction. The Equipment Operator performing the verification of SW-38 position applied force to the handwheel, but he found that he could not move the valve in the close direction. He realized that the "locking device" (T-handle that prevents inadvertent movement of the valve handwheel) was locking the handwheel. Rather than loosening the "locking device" and turning the handwheel, he visually checked the position indication. This valve has a position indication that does not contain the words "open" or "closed" to indicate its position, but rather utilizes an arrow pointing to "O" (open) or "C" (closed). The SW-38 position indication arrow was blocking part of the letter and he thought that it was the "O" when, in fact, it was the "C". Therefore, the valve was and remained closed.

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Davis-Besse Unit Number 1	05000346	2005	-- 006 --	00	4 OF 5

17. NARRATIVE *(If more space is required, use additional copies of NRC Form 366A)*

APPARENT CAUSE OF OCCURRENCE (continued):

Station procedure DB-OP-01002 Revision 2, "Component Operation and Verification," states to check that a manual valve or stop check valve is open, apply force to the handwheel in the close direction. When valve movement in the close direction is verified, re-open the valve. Additionally, procedure NOBP-LP-2604 Revision 0, "Job Briefs" states a "Critical Step" is an action which, if performed improperly, will lead to an unintentional change that adversely impacts the plant, a system, or personnel safety. The SAFER briefing card states to summarize the job's critical steps during the pre-job brief.

The root cause(s) of SW-38 not being properly verified open thus rendering CCW train 2 and EDG 2 inoperable was determined to be: 1) worker practice error; the required verification was not performed in that the Equipment Operator did not properly verify the position of SW-38 in accordance with DB-OP-01002; and 2) less than adequate briefing, in that the briefing did not utilize the SAFER briefing card, which would have required the identification of critical steps during performance of the pre-start checklist.

ANALYSIS OF OCCURRENCE:

While placing CCW pump 2 in standby, the pump was operated for approximately 5 minutes with pump temperatures remaining in the normal operating band. Valve SW-38 remained closed until it was discovered closed by an Equipment Operator during his zone tour on November 15, 2005 at approximately 1027 hours. During the time that SW-38 was in the closed position, CCW train 2 heat exchanger would not have received cooling water from Service Water train 2, and CCW train 2 would not have been able to fulfill its intended safety function. With SW-38 closed, CCW train 2 and its associated EDG 2 were determined to be inoperable from 1640 hours on 11/14/05 to 1038 hours on 11/15/05 (approximately 18 hours).

During the time that CCW train 2 was declared available for standby service with SW-38 in the closed position, CCW train 2 heat exchanger would not have received cooling water from SW train 2. The CCW train 2 would not have been able to fulfill its intended safety function. With SW-38 closed the following systems were inoperable during the timeframe of 1640 hours on 11/14/05 to 1038 hours on 11/15/05 (approximately 18 hours): CCW train 2 (TS 3.7.3.1), Decay Heat train 2 (TS 3.5.2.b), High Pressure Injection train 2 (TS 3.5.2.a), EDG 2 (3.8.1.1), and Containment Hydrogen analyzer [IK] train 2 (Technical Requirements Manual 3.6.4.1).

During this time, Decay Heat train 1, High Pressure Injection train 1, EDG 1, and Containment Hydrogen analyzer train 1 remained operable. Several Control Room and local alarms are available that would have alerted the operators to increased component temperatures. Additionally, procedure DB-SC-03023, "Off-Site AC Sources Lined Up and Available," was completed satisfactorily prior to this event on November 11, 2005 and afterwards on November 18, 2005 verifying the correct breaker alignments and power availability.

While Station Vent Radiation Monitor [IL] RE4598AA was inoperable for a filter change (from 11/15/05 at 1014 hours to 11/15/05 at 1101 hours), Station Vent Radiation Monitor RE4598BA was also inoperable because it had no emergency power source (EDG 2) (TS 3.7.6.1) until SW-38 was opened at 1038 hours therefore, both RE4598AA and RE4598BA were inoperable for 24 minutes. One Station Vent Radiation Monitor (RE4598BA) was restored to operable status within the prescribed TS 3.7.6.1 Action c 1-hour action statement time when CCW train 2 was returned to operable status (SW-38 opened).

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Davis-Besse Unit Number 1	05000346	2005	-- 006 --	00	5 OF 5

17. NARRATIVE *(If more space is required, use additional copies of NRC Form 366A)*

ANALYSIS OF OCCURRENCE (continued):

With the exception of EDG 2 and Decay Heat train 2, the above equipment was restored to operable status within the prescribed individually allowed Action statement times when CCW train 2 was returned to operable status (SW-38 opened). Emergency Diesel Generator 2 was restored to operable status within the TS 3.8.1.1 Action b required time of 7 days. Prior to finding SW-38 closed, Decay Heat train 2 had been removed from service and declared inoperable on November 14, 2005 at 1810 hours for planned maintenance activities and remained inoperable until completion of the planned maintenance activities.

Based upon the availability of train 1 equipment to respond to any actual event during this time, the short duration that SW-38 was closed, and off-site power remained available; this event had minimal safety significance.

CORRECTIVE ACTIONS:

Standing Order 05-018, "When Independent Verification is Required," was issued on November 16, 2005. This Standing Order reiterates the standards for Independent Verification and requires additional sign offs to be inserted, as necessary, to document completion of the independent verification.

This event was discussed with Operations on-shift personnel, including the importance of identifying critical steps, use of the SAFER briefing card, and the necessity of always using the event free tools. This action was completed by December 21, 2005.

The individual human performance issues associated with this event were addressed by December 13, 2005 in accordance with the company performance management process.

As an additional action tracked in the DBNPS Corrective Action Program, an extent of condition review is planned to identify those procedures that should have an independent verification as required by DB-OP-01002 and to develop a standing order for independent verification for those procedures identified.

FAILURE DATA:

There have been no Licensee Event Reports submitted by the FirstEnergy Nuclear Operating Company for the DBNPS in the last three years reporting an event associated with valve mispositioning.

There have been 31 valve mispositioning events identified on Condition Reports in the past 5 years at the DBNPS. Of these, procedure problems accounted for approximately 38%. Human performance issues were involved in approximately 25%. The number of human performance error valve mispositioning events over the past 5 years does not appear to be a generic or broader scope issue. The corrective actions taken at the DBNPS appear to be in line with the corrective actions taken within the nuclear power plant industry for this type of event. A recent review of Operations-related Observation Cards for the recent Operations Integrated Performance Assessment/Trending showed that the top 2 strengths mentioned most often were the use of event free tools and briefings. This would indicate that there does not appear to be a generic problem in these areas among operators.

Energy Industry Identification System (EIIS) codes are identified in the text as [XX].